REMARKS

1) Rejection of claims 33, 38-40 and 60 under 35 U.S.C. § 103(a) as being unpatentable over Hayase et al. (Patent No. 4,929,159) in view of Otto (Patent No. 5,707,222)

The Examiner asserts that the combined teachings of Hayase et al. and Otto make Applicant's claimed invention obvious and therefore unpatentable. Applicant respectfully traverses this rejection. An obviousness rejection based on a combination of prior art references must teach or suggest each and every element of the claimed device. *In re Royka*, 490 F.2d 981 (CCPA 1974). The proposed combination of Hayase et al. and Otto does not teach or suggest every element of Applicant's claimed invention.

The Examiner states that Hayase et al. teach a drivable, one-piece rotor having a blade in a housing, the rotor "comprising a first longitudinal section ... configured for being coupled to a drive shaft" through which torque can be transmitted from the drive shaft to the rotor. Applicant submits, however, that the Examiner has misunderstood the disclosures in the Hayase et al. reference. Hayase et al. do not teach a single-piece rotor coupled to a drive shaft. Instead, they disclose a rotor (1) having a shaft portion (100), with both the rotor and shaft portion being formed *as a single, continuous piece*. *See* Hayase et al. Patent, Fig. 1. The Hayase et al. reference neither discloses nor suggests any coupling between the rotor and a drive shaft as there is no use or need for a coupling on a one-piece part. Moreover, Hayase et al. provide no suggestion to modify their single-piece rotor and drive shaft by splitting them into two separate pieces that could then be coupled.

In contrast, Applicant's claimed invention requires a rotor configured for being "coupled" to a drive shaft. This language anticipates that the drive shaft and rotor are two separate parts. Applicant's disclosure of the invention supports this understanding of the claim language. The

specification states that Applicant's single-piece rotor can be connected to a drive shaft either "directly" or through a "coupling." In particular, Applicant discloses a cap that protects the double surface of the rotor on the drive side from wear "caused by a relative motion between the double surface and a coupling, or in the case of direct driving of the rotor, i.e., without a coupling, between the double surface and the drive shaft." Pending Application ¶ 51, lines 6-9. In either case, whether the link is direct or through a coupling, the drive shaft and rotor are separate pieces. The coupling action serves to dampen torque spikes or oscillations from the engine that could otherwise harm the vacuum pump. *See* Pending Application ¶ 9 (discussing the use of an elastic drive element between the rotor and drive shaft). The Hayase patent clearly does not teach a single-piece rotor that is configured for coupling with a separate drive shaft. Therefore, the fundamental premise of the rejection is flawed.

The Otto reference is equally deficient. Although Otto teaches that the rotor can be made of plastic, Otto also teaches that the rotor is formed of two parts that are bolted together. Thus, even if one of ordinary skill in the art were to combined the teachings of Hayase et al. with Otto, one would not obtain applicant's claimed invention. Hayase et al. teach a single-piece rotor and drive shaft, while Otto teaches a two-piece plastic rotor unit that is bolted together. The combination of these two references does not yield Applicant's claimed vacuum pump comprising a drivable rotor formed as one piece and configured for being coupled to a drive shaft. Thus, Applicant respectfully submits that claims 33, 38-40 and 60 are not rendered obvious by Hayase et al. in view of Otto.

2) Rejection of claims 34-37, 41 and 42 under 35 U.S.C. § 103(a) as being unpatentable over Hayase et al. in view of Otto and further in view of Hattori et al. (Publication Number JP 61-149594).

The Examiner assert that the combined teachings of Hayase et al., Otto and Hattori et al. make claims 34-37, 41 and 42 of Applicant's claimed invention obvious and therefore unpatentable. Applicant respectfully traverses this rejection for the reasons outlined above regarding the deficiencies of the Hayase et al. reference. The combination of Hayase et al. with either Otto or Hattori et al. does not result in a vacuum pump comprising a drivable rotor formed as one piece and configured for being coupled to a drive shaft. Furthermore, there is no suggestion or motivation in these references to experiment or modify their combined teachings in order to achieved Applicant's claimed device. Any suggestion to the contrary is impermissible hindsight reconstruction. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988) ("one cannot use hindsight reconstruction to pick and choose among isolated disclosure in the prior art to deprecate the claimed invention.").

The Hayase et al., Otto and Hattori et al. references are individually deficient and fail even in combination to disclose each element of the claimed device. Thus, claims 34-37, 41 and 42 are not rendered unpatentably obvious by these three references, considered either separately or in combination.

3) Rejection of claims 91-99, 117, 118, 120 and 121 under 35 U.S.C. § 103(a) as being unpatentable over Hayase et al. in view of Otto and further in view of Hattori et al. (Publication Nmber JP 61-149594).

The Examiner asserts that the combined teachings of Hayase et al., Otto and Hattori et al. make claims 91-99, 117, 118, 120 and 121 of Applicant's claimed invention obvious and

therefore unpatentable. Applicant disagrees. Again, the Examiner suggests that the "modified Hayase" devise, in combination with the devices of Otto and Hattori at al., renders Applicant's invention obvious. Applicant traverses this rejection for the reasons stated above regarding the deficiencies of the Hayase et al. device and its combination with the other two references. Even if one of ordinary skill in the art were to combine the Examiner's cited references, one would not obtain Applicant's claimed vacuum pump comprising a drivable rotor formed as one piece and configured for being coupled to a separate drive shaft.

4) Conclusion

In view of the above arguments and explanations of the Examiner's cited references, Applicant respectfully submits that the application is in condition for allowance. Should the Examiner determine that there is a need for adverse action on the claims, it is requested that she contact Applicant's attorney, Randall B. Bateman at (801) 478-0071 so that such matters may be resolved as expeditiously as possible.

Respectfully Submitted,
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